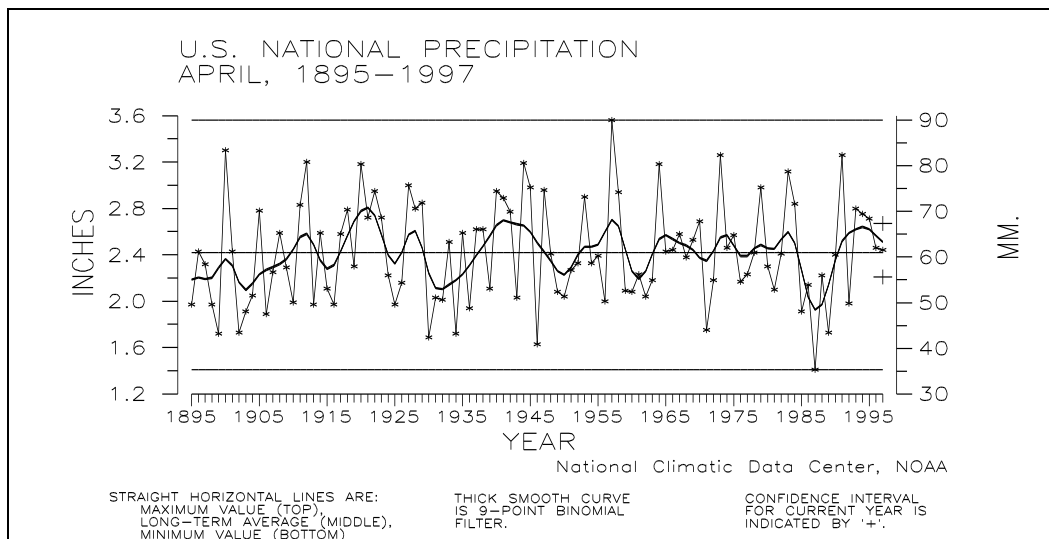
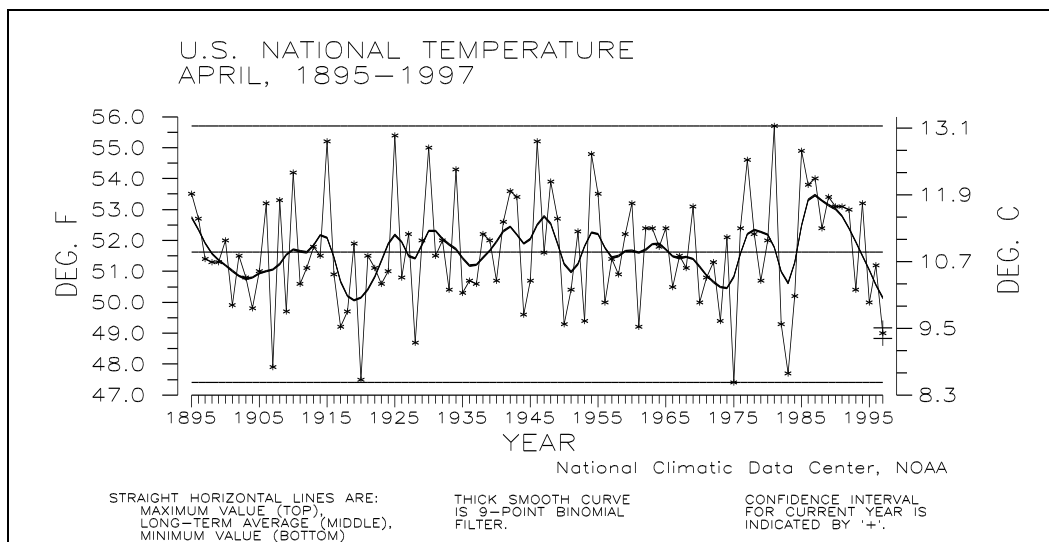


CLIMATE VARIATIONS BULLETIN



This CLIMATE VARIATIONS BULLETIN (CVB) is a preliminary report that puts current monthly climate anomalies into historical perspective using climate databases archived at the National Climatic Data Center (NCDC). It is issued on a monthly basis. Supplemental sections are included which address seasonal and annual perspectives, when appropriate.

Current data are based on preliminary reports from River Forecast Center stations and First and Second Order airport stations obtained from the National Weather Service (NWS) Climate Prediction Center (formerly, Climate Analysis Center), and preliminary tornado statistics obtained from the NWS National Severe Storms Forecast Center. THE CURRENT DATA SHOULD BE USED WITH CAUTION. These preliminary data are useful for estimating how current anomalies compare to the historical record, however the actual values and rankings for the current year will change as the final data arrive at NCDC and are processed.

The following NCDC datasets are used for the historical data: the climate division drought database (TD-9640), the hurricane datasets (TD-9636 and TD-9697), the tornado dataset (STORM DATA), and the monthly station dataset (LCD supplemental files). It should be noted that the climate division drought database consists of monthly data for 344 climate divisions in the contiguous United States. These divisional values are calculated from the 6000+ station Cooperative Observer network.

If you have access to the Internet, copies of the CVB are available via both the NCDC's World Wide Web (WWW) server and the NCDC's anonymous FTP server.

NCDC's WWW server

URL for the CVB: <http://www.ncdc.noaa.gov/publications/cvb/cvb.html>

NCDC's anonymous FTP server

Machine: <ftp.ncdc.noaa.gov>

Directory: [/pub/data/cvb](ftp://ftp.ncdc.noaa.gov/pub/data/cvb)

If you are a climate researcher and would like to order copies of the historical datasets used to make graphs of the type in this report, call 704-271-4994 or fax a letter to 704-271-4876 or mail a letter to the address given below, ATTN: Research User Services.

All other questions or requests for data should be made by calling 704-271-4800 or sending a fax to 704-271-4876 or by writing to:

National Climatic Data Center, NOAA
Federal Building
151 Patton Avenue, Room 120
Asheville, NC 28801-5001

If you use any of the information from this CVB, please identify "National Climatic Data Center, NCDC" as the source.

UNITED STATES APRIL CLIMATE IN HISTORICAL PERSPECTIVE

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TABLE 1. PRECIPITATION AND TEMPERATURE RANKS, BASED
ON THE PERIOD 1895-1997. 1 = DRIEST/COLDEST,
103 = WETTEST/WARMEST FOR APRIL 1997,
103 = WETTEST/WARMEST FOR MAR-APR 1997,
102 = WETTEST/WARMEST FOR NOV 1996-APR 1997,
102 = WETTEST/WARMEST FOR MAY 1996-APR 1997.

REGION	APR 1997	MAR-APR 1997	NOV 1996- APR 1997	MAY 1996- APR 1997
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PRECIPITATION:				
NORTHEAST	8	30	52	99
EAST NORTH CENTRAL	13	11	62	71
CENTRAL	8	25	56	87
SOUTHEAST	75	41	52	66
WEST NORTH CENTRAL	56	46	100	88
SOUTH	83	72	76	88
SOUTHWEST	86	34	69	73
NORTHWEST	91	93	101	101
WEST	26	5	67	66
NATIONAL	59	38	86	98
TEMPERATURE:				
NORTHEAST	29	43	77	69
EAST NORTH CENTRAL	33	48	28	22
CENTRAL	10	51	42	27
SOUTHEAST	11	76	72	56
WEST NORTH CENTRAL	11	46	21	21
SOUTH	3	44	56	48
SOUTHWEST	18	72	85	92
NORTHWEST	35	71	76	65
WEST	59	90	94	99
NATIONAL	6	59	60	60

TABLE 2. EXTREMES, 1961-90 NORMALS, AND 1997 VALUES FOR APRIL. IT SHOULD BE NOTED THAT THE 1997 VALUES WILL CHANGE WHEN THE FINAL DATA ARE PROCESSED.

REGION	PRECIPITATION (INCHES)				NORMAL PCPN	1997 PCPN
	DRIEST VALUE	YEAR	WETTEST VALUE	YEAR		
NORTHEAST	1.40	1896	6.81	1983	3.42	2.06
EAST NORTH CENTRAL	1.04	1946	4.84	1896	2.63	1.63
CENTRAL	1.55	1915	6.82	1927	3.95	2.42
SOUTHEAST	.85	1986	7.06	1928	3.52	4.54
WEST NORTH CENTRAL	.48	1926	2.83	1984	1.62	1.55
SOUTH	1.08	1987	6.92	1957	2.98	4.23
SOUTHWEST	.26	1989	2.58	1900	.83	1.27
NORTHWEST	.61	1977	3.81	1937	1.97	2.69
WEST	.14	1909	3.25	1967	1.22	.62
NATIONAL	1.41	1987	3.56	1957	2.38	2.44*

* PRELIMINARY VALUE, CONFIDENCE
INTERVAL + OR - .23 INCHES

REGION	TEMPERATURE (DEGREES F)				NORMAL TEMP	1997 TEMP
	COLDEST VALUE	YEAR	WARMEST VALUE	YEAR		
NORTHEAST	38.8	1943	50.4	1921	44.4	42.9
EAST NORTH CENTRAL	35.7	1950	51.8	1915	44.0	41.6
CENTRAL	45.4	1907	59.5	1896	53.4	49.4
SOUTHEAST	56.6	1901	66.6	1954	62.1	59.8
WEST NORTH CENTRAL	34.5	1920	49.5	1915	43.0	38.8
SOUTH	57.2	1983	67.4	1925	62.7	58.1
SOUTHWEST	44.4	1920	55.6	1989	49.9	47.9
NORTHWEST	39.7	1975	52.6	1934	44.9	44.2
WEST	43.3	1967	58.5	1934	51.9	53.2
NATIONAL	47.4	1975	55.7	1981	51.7	49.0*

* PRELIMINARY VALUE, CONFIDENCE
INTERVAL + OR - .2 DEG. F.

TABLE 3.

STATISTICS FOR SELECTED RIVER BASINS: PRECIPITATION RANKING FOR OCT-APR 1996-97, WHERE RANK OF 1 = DRIEST, 102 = WETTEST, BASED ON THE PERIOD 1895 TO 1997, AREAL PERCENT OF THE BASIN EXPERIENCING SEVERE OR EXTREME LONG-TERM (PALMER) DROUGHT, AND AREAL PERCENT OF THE BASIN EXPERIENCING SEVERE OR EXTREME LONG-TERM (PALMER) WET CONDITIONS, AS OF APRIL 1997.
RIVER BASIN REGIONS AS DEFINED BY THE U.S. WATER RESOURCES COUNCIL.

RIVER BASIN -----	PRECIPITATION RANK -----	% AREA DRY -----	% AREA WET -----
MISSOURI BASIN	72	.0%	41.8%
PACIFIC NORTHWEST BASIN	101	.0%	74.6%
CALIFORNIA RIVER BASIN	62	28.8%	.0%
GREAT BASIN	84	.0%	.0%
UPPER COLORADO BASIN	102	.0%	44.7%
LOWER COLORADO BASIN	44	46.6%	.0%
RIO GRANDE BASIN	68	.0%	5.4%
ARKANSAS-WHITE-RED BASIN	66	.0%	7.6%
TEXAS GULF COAST BASIN	70	.0%	29.7%
SOURIS-RED-RAINY BASIN	93	.0%	47.4%
UPPER MISSISSIPPI BASIN	72	.0%	11.8%
LOWER MISSISSIPPI BASIN	87	.0%	8.5%
GREAT LAKES BASIN	63	.0%	4.1%
OHIO RIVER BASIN	39	.0%	.0%
TENNESSEE RIVER BASIN	66	.0%	.0%
NEW ENGLAND BASIN	64	.0%	18.4%
MID-ATLANTIC BASIN	75	.0%	5.1%
SOUTH ATLANTIC-GULF BASIN	57	.0%	.0%

U.S. NATIONAL TEMPERATURE APRIL, 1895-1997

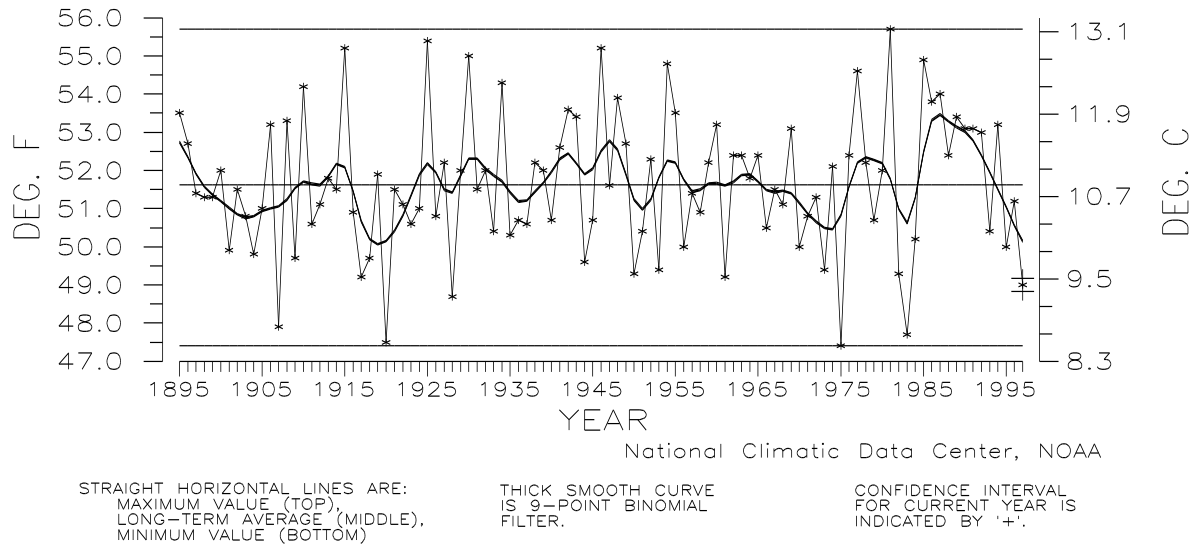


Figure 1: Preliminary data for April 1997 indicate that temperature averaged across the contiguous United States was much below the long-term mean ranking as the sixth coolest April since 1895. Thirty-nine percent of the country was much cooler than normal while none of the country was much warmer than normal.

U.S. NATIONAL PRECIPITATION APRIL, 1895-1997

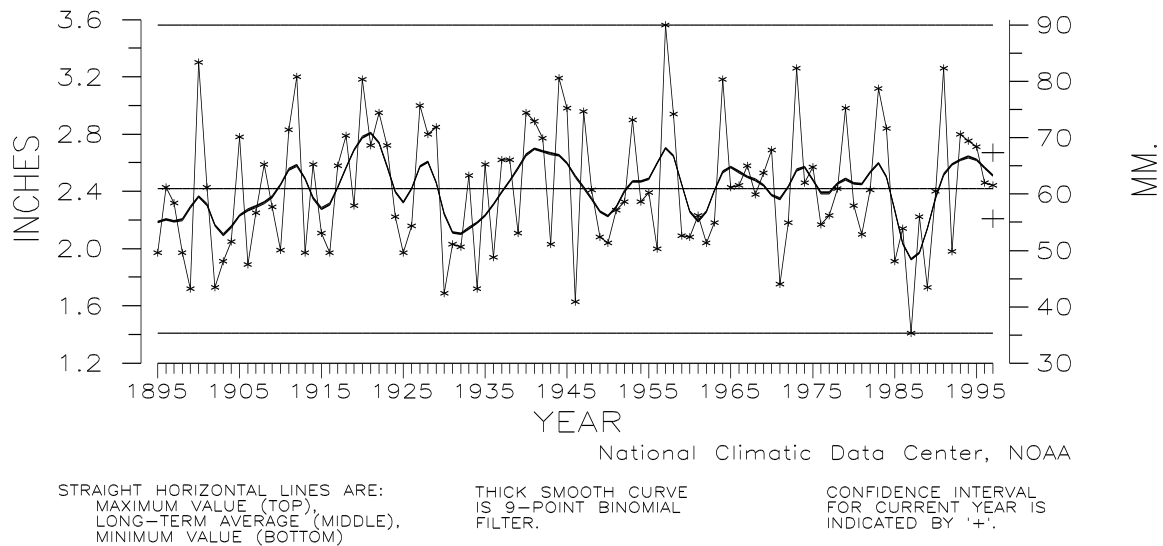


Figure 2: April 1997 was the 45th wettest such month since 1895. Ten percent of the country experienced much wetter than normal conditions while about twelve percent of the country was much drier than normal.

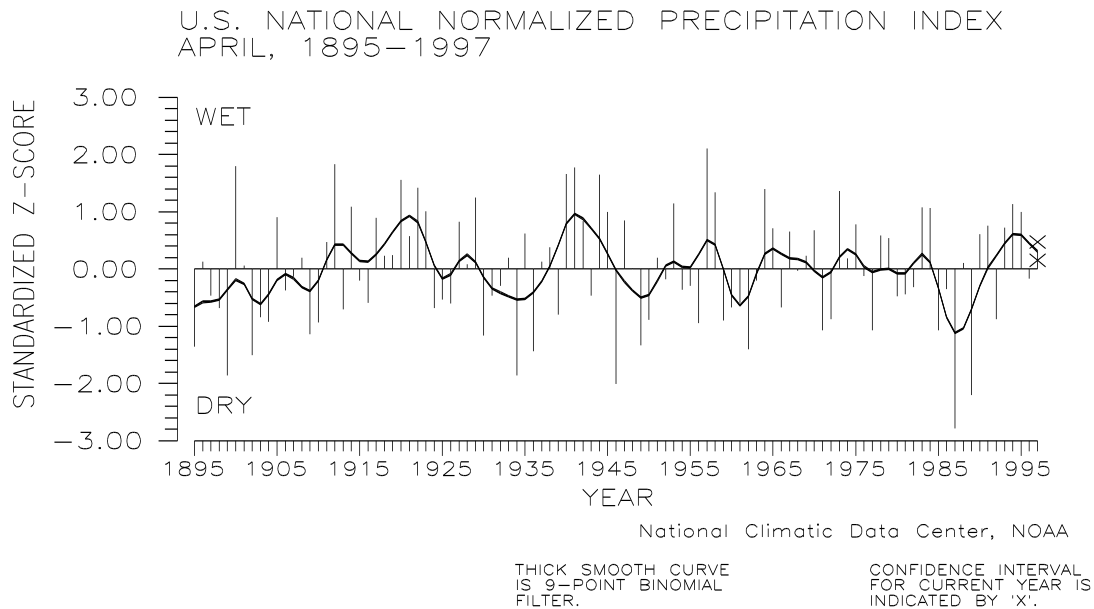


Figure 3: The preliminary national standardized precipitation index ranked April 1997 as the 39th wettest such month on record. This standardized z-score is estimated to be accurate to within 0.156 index units and its confidence interval is shown as an 'X'.

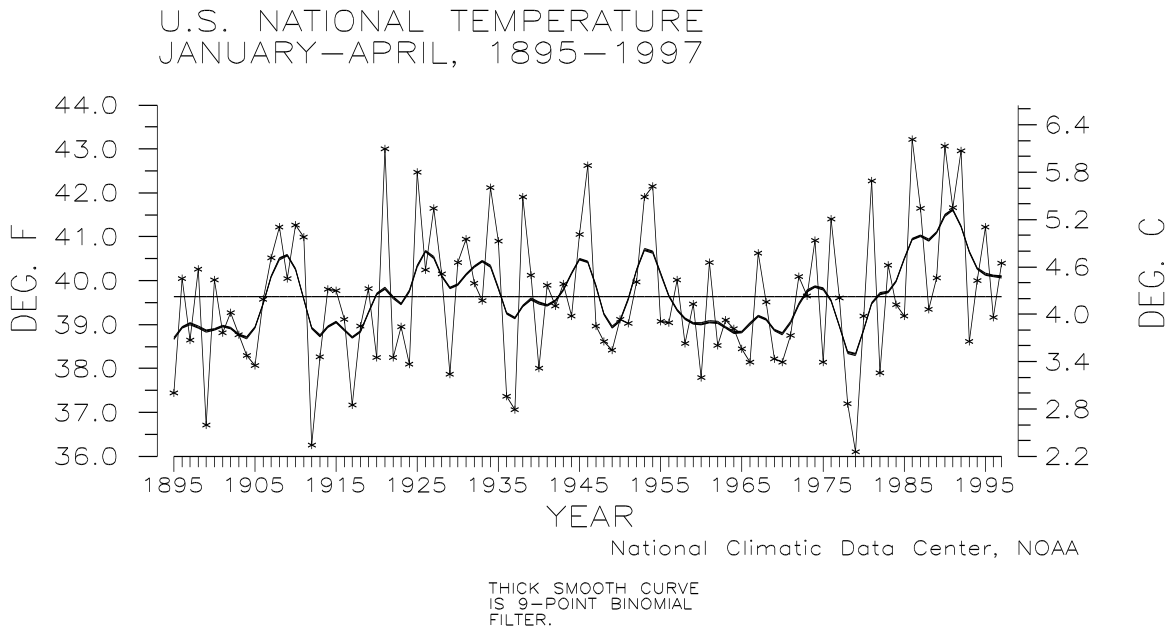


Figure 4: Based upon preliminary data, January-April 1997 was the 28th warmest such period on record. Six of the last twelve such periods have been much above the long-term mean. For the year to date, nearly four percent of the country has been much warmer than normal while none of the country was much cooler than normal.

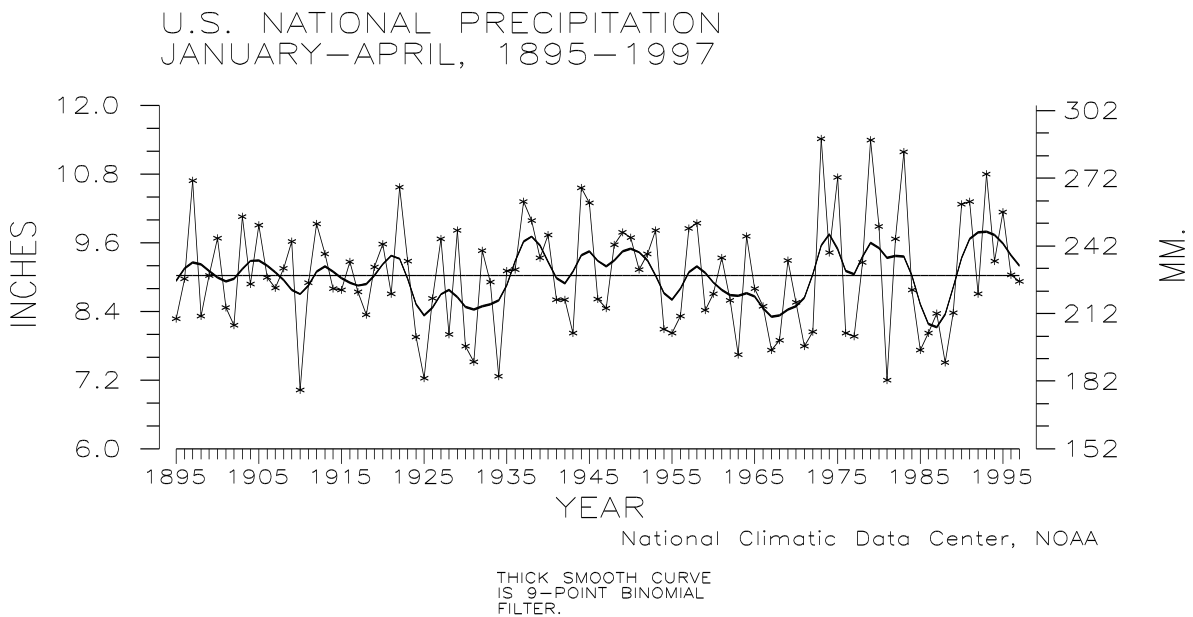


Figure 5: Preliminary precipitation data indicate that the year-to-date, January-April 1997, was the 51st driest such four-month period since records began. About seven percent of the country was much drier than normal while about nine percent of the country was much wetter than normal.

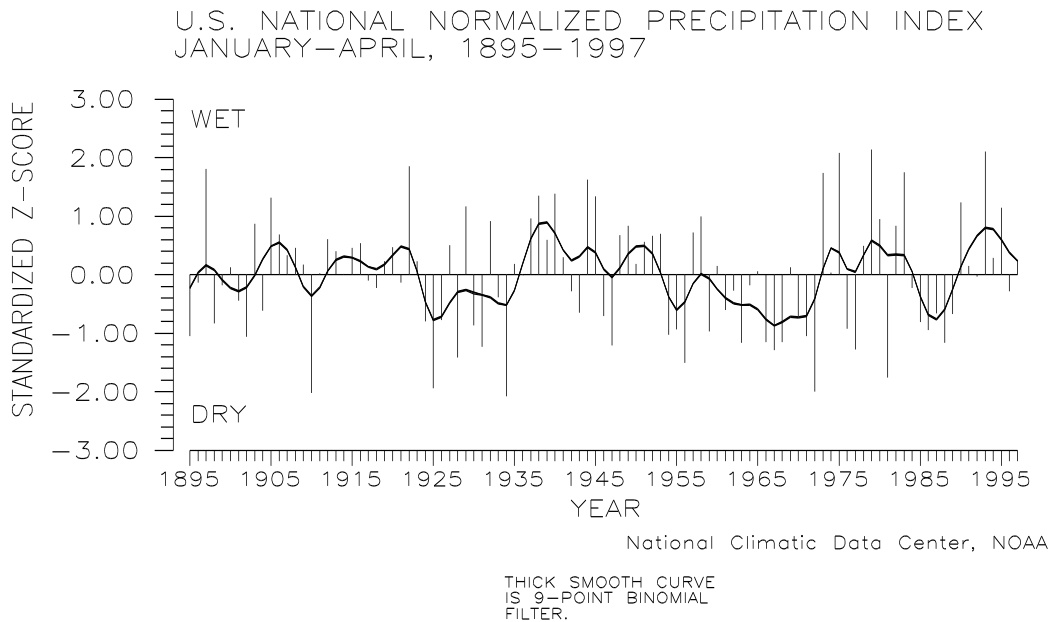
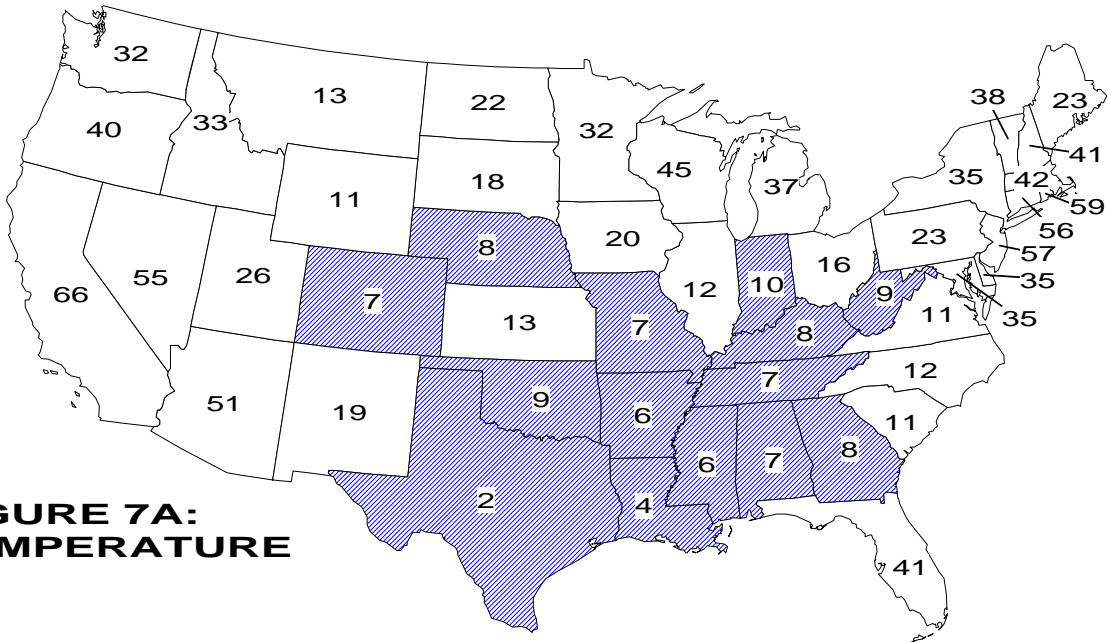
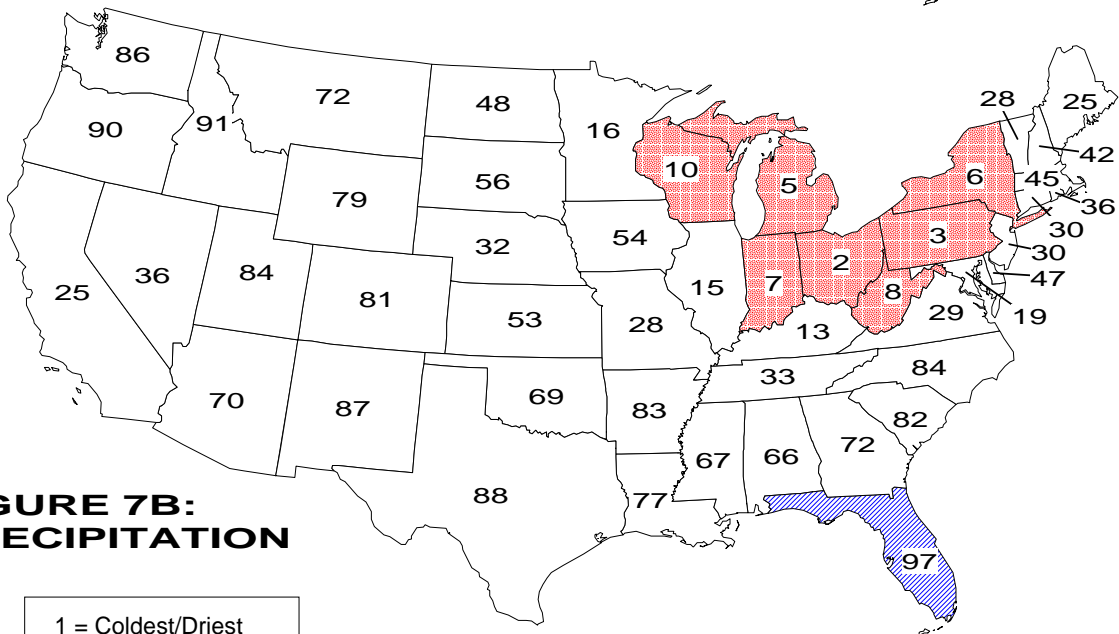


Figure 6: The preliminary national year-to-date standardized precipitation index ranked January-April 1997 as the 41st wettest such period since 1895.

APRIL 1997 STATEWIDE RANKS



**FIGURE 7A:
TEMPERATURE**



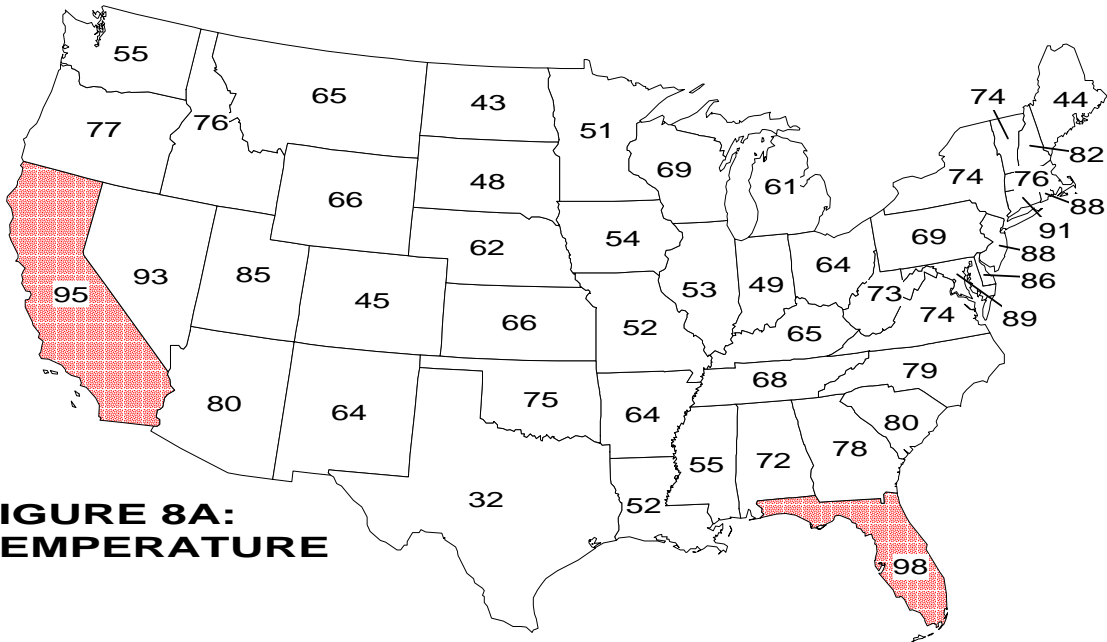
**FIGURE 7B:
PRECIPITATION**

1 = Coldest/Driest
103 = Warmest/Wettest

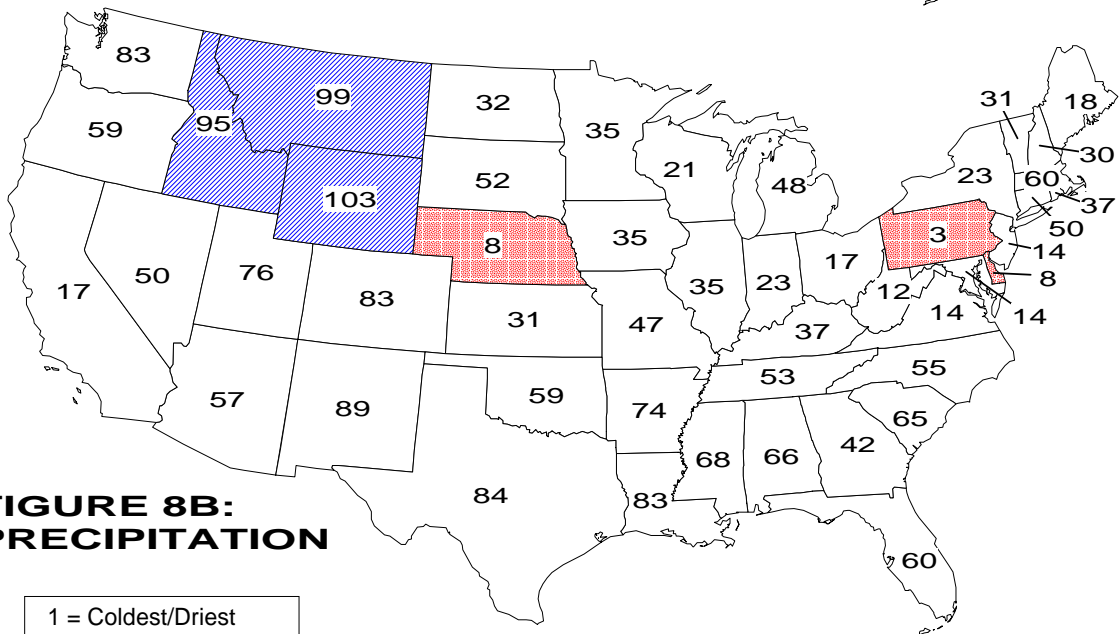
National Climatic Data Center, NOAA

Temperature and Precipitation Ranks for the contiguous United States. Each state is ranked based on its data from 1895-1997. States having a rank of top ten coldest or driest (rank 1-10) or top ten warmest or wettest (rank 94-103) are shaded.

JAN-APR 1997 STATEWIDE RANKS



**FIGURE 8A:
TEMPERATURE**



**FIGURE 8B:
PRECIPITATION**

1 = Coldest/Driest
103 = Warmest/Wettest

National Climatic Data Center, NOAA

Temperature and Precipitation Ranks for the contiguous United States. Each state is ranked based on its data from 1895-1997. States having a rank of top ten coldest or driest (rank 1-10) or top ten warmest or wettest (rank 94-103) are shaded.

Figure 7A shows, in illustrative map form, the April 1997 temperature rankings for the 48 contiguous states. No state was within the warm third of the historical distribution while 32 states ranked within the cool third of the historical distribution. Fourteen states had their tenth coolest or cooler April since 1895. Included in this statistic was Texas with the second coolest April since 1895, Louisiana with the fourth coolest April on record and Arkansas and Mississippi with the sixth coolest April since records began.

April 1997 state ranks for precipitation are shown in Figure 7B. One state (Florida, seventh wettest) ranked within the top ten wet portion of the historical distribution while an additional fifteen states ranked within the wet third. Seven states were within the top ten dry portion of the historical distribution including the second driest April on record for Ohio, third driest for Pennsylvania and the fifth driest April since 1895 for Michigan. Thirteen additional states ranked within the dry third of the historical distribution. ***It should be noted that these April state categorical precipitation ranks are preliminary and should be used with considerable caution due to the high variability of precipitation on a small space and time scale.***

Year-to-date statewide temperature and precipitation ranks are shown in Figures 8A and 8B. Only one state (Texas, 32nd coolest) ranked within the cool third of the historical distribution for the four-month period while 23 states ranked within the warm third of the distribution. Two states ranked within the top ten warm portion of the distribution. It was the sixth warmest such four-month period on record for Florida and the ninth warmest for California. January-April 1997 was the third driest such period on record for Pennsylvania and the eighth driest such four-month period on record for Delaware and Nebraska. Fourteen other states ranked within the dry third of the historical distribution for the four-month period. January through April 1997 was the wettest such period on record for Wyoming, fourth wettest for Montana and the ninth wettest such period since 1895 for Idaho. Seven other states ranked within the wet-third of the historical distribution.

It should be emphasized that all of the temperature and precipitation ranks on these maps and in Table 1 are based on preliminary data. The ranks will change when the final data are processed.

U.S. PERCENT AREA DRY AND WET JANUARY 1993 THROUGH APRIL 1997

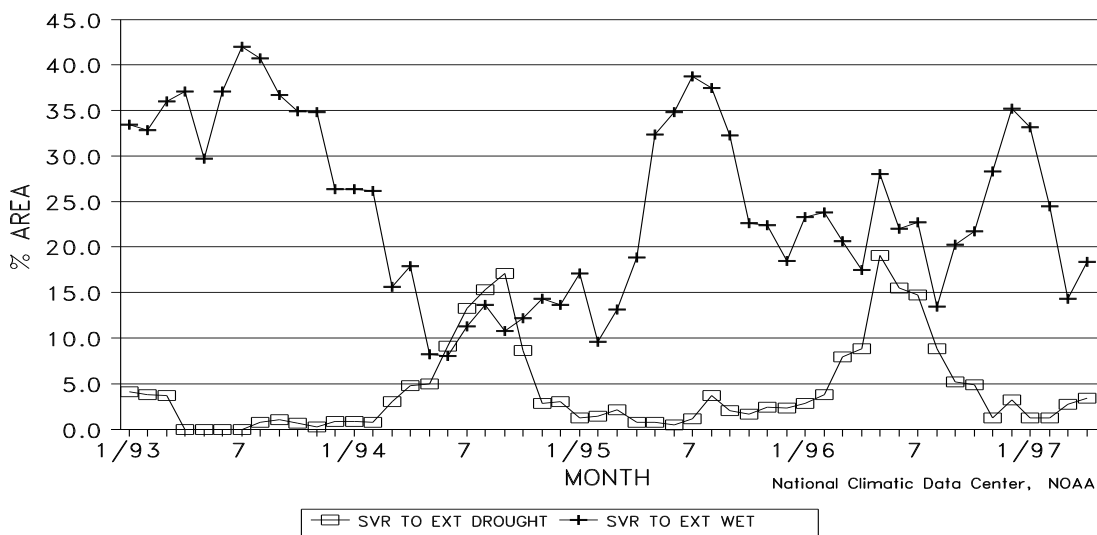


Figure 9: Long term drought coverage (as measured by the Palmer Drought Index) remained relatively constant for the sixth straight month during April 1997 at slightly above three percent of the country. The percent area of the country experiencing severe to extreme wetness climbed from the March value to include roughly 18% of the country. The core dry areas included limited portions of the Southwest while core wet areas included much of the northern Great Plains, northern and central Rockies and High Plains, the Pacific Northwest and portions of the lower Mississippi valley.

MONTHLY MEAN TEMP APRIL 1997

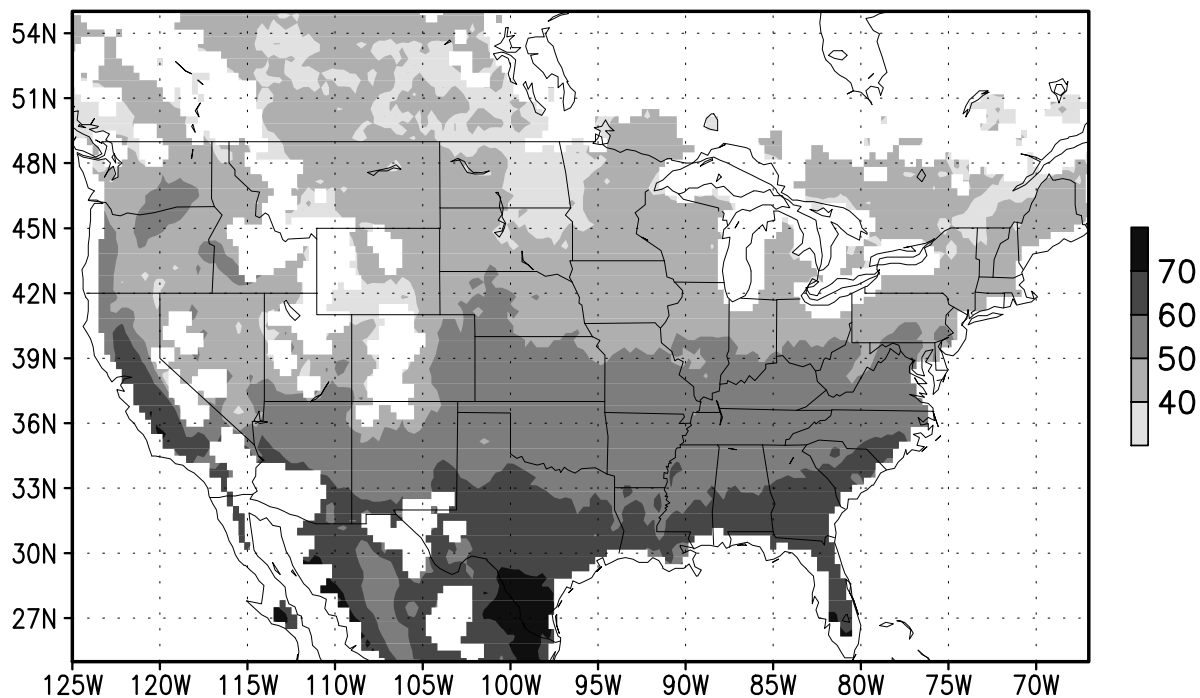


Figure 10

SNOW COVER APRIL 1997

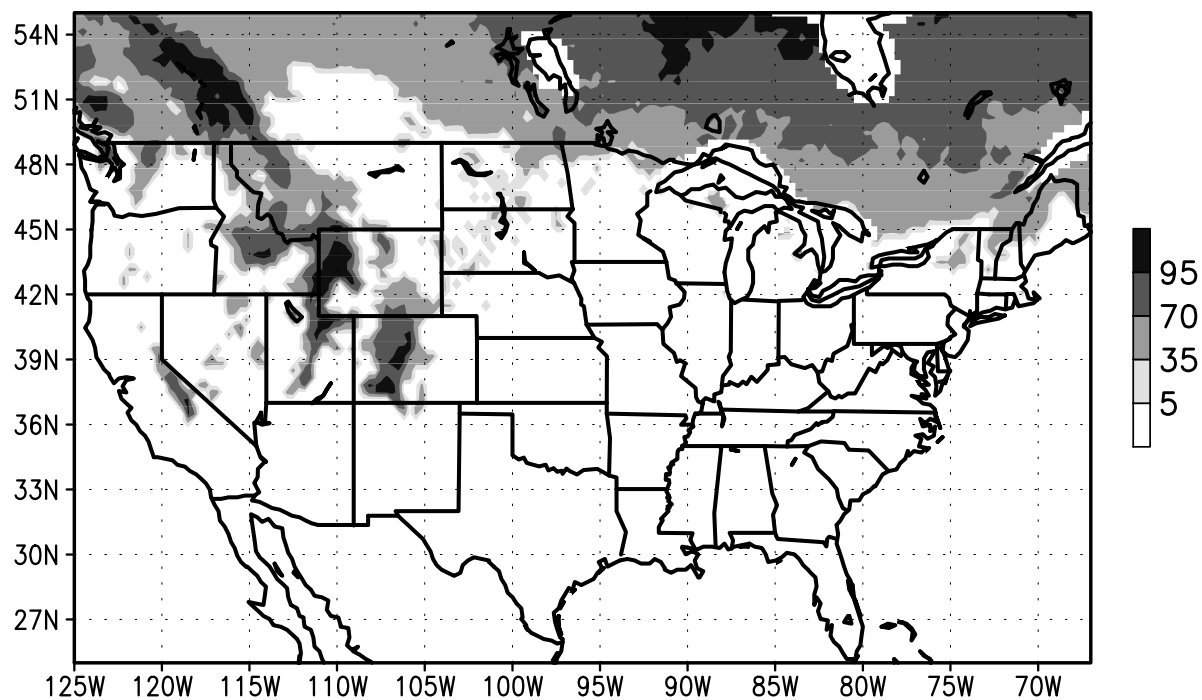


Figure 11

SNOW COVER ANOMALIES (%) APRIL 1997

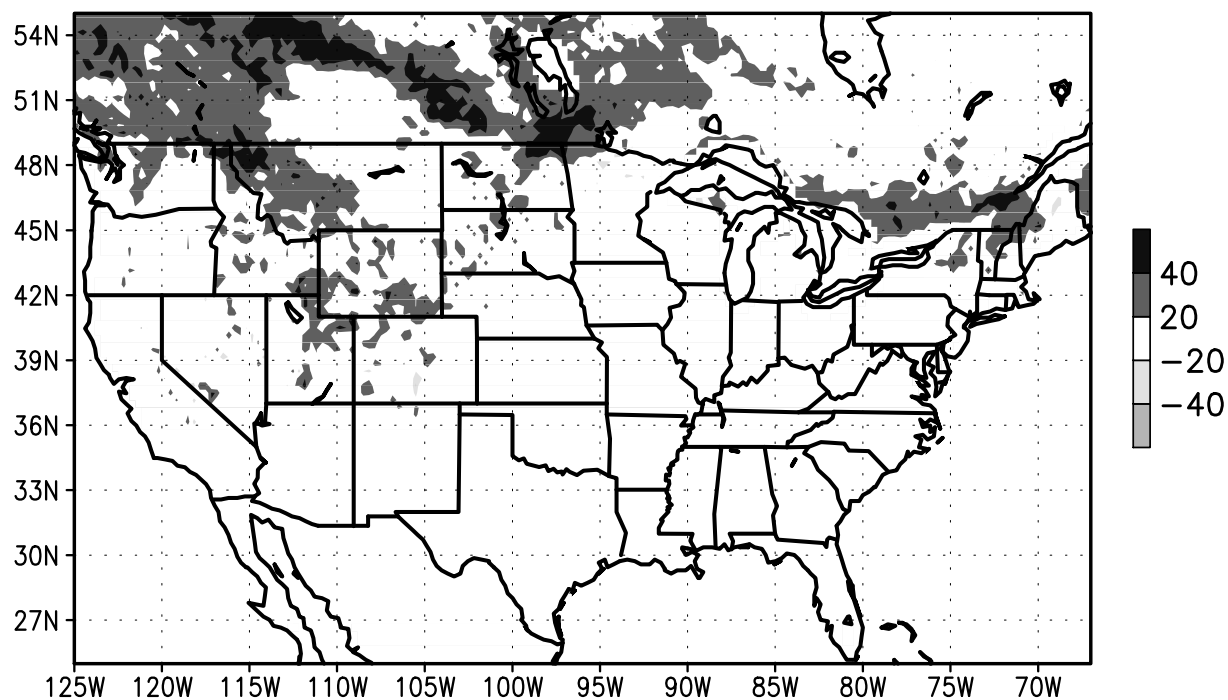


Figure 12

SURFACE WETNESS ANOMALIES APRIL 1997

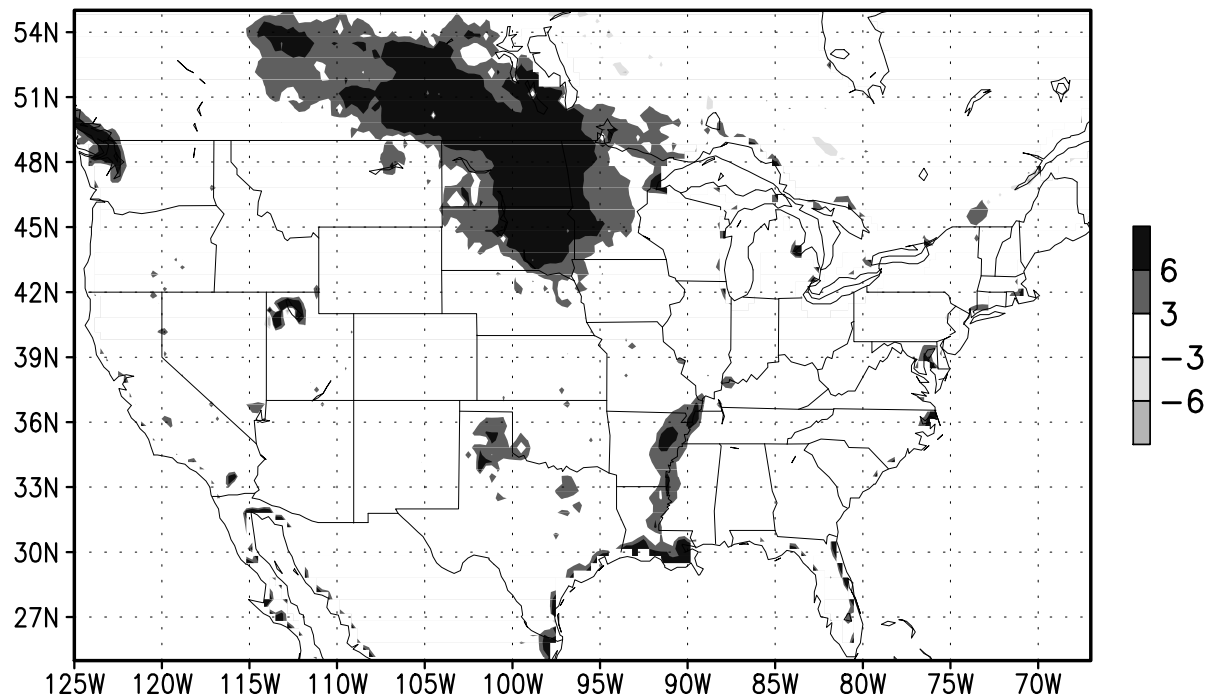


Figure 13

Figure 10. NCDC's experimental Special Sensor Microwave Imager (SSM/I) derived mean temperature for April 1997. White areas are missing data.

Snow cover extent (Figure 11) and anomalies (Figure 12) over the United States for April 1997 as derived from SSM/I satellite data. The values correspond to the percentage of the month that snow covered each $1/3^\circ$ pixel. The base period for the anomalies is 1988-1997. Global fields and references are available at www.ncdc.noaa.gov.

Figure 13. Surface wetness anomalies derived from the NCDC experimental SSM/I derived wetness index for April 1997. The base period of the anomalies is 1988-1997. The index is unitless and corresponds to the quantity of water seen in the microwave spectrum by a satellite. This surface is either the ground or an overlying canopy. Despite the caution this necessitates in interpreting SSM/I wetness fields, there are some strong signals present such as the extreme wetness of the Red River valley and the lower Mississippi River valley which are the result of rapid snow melt and heavy rains, respectively.